(T) Roll No. .....

PAPER ID—16150

B.Tech. EXAMINATION, 2024

(First Semester)

COMPUTER SCIENCE AND ENGINEERING

(Cyber Security)

Code : CSE-101

Programming for Problem Solving Using C

Time : 3 *Hours* *Maximum Marks* : 70

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *four* questions from Unit II. Q. No. 1 (Unit I) is compulsory. All questions carry equal marks.

Unit I

1. (a) What is the purpose of adding comments in a program ?

   (b) Explain the difference between prefix and postfix increment operators with an example.

   (c) What is a preprocessor ? Name various preprocessors in C.

   (d) What is a string ? What are its features ?

   (e) How are arrays passed to functions in C ?

   (f) How can you access the value of a variable using a pointer ?

   (g) What is the purpose of the struct keyword ? **2×7=14**

Unit II

2. (a) What are data types ? Explain the various data types used in C language. Mention the size of each. 7

(b) What is a flow chart ? Explain the various symbols and their functions used in a flowchart. 7

3. (a) Compare the working of for, while and do-while loops along with their syntax. 7

(b) What is the use of break and continue statements ? Write a program in C to print all odd and even numbers between 1 and 100. 7

4. (a) What is an array ? How 1D integer array is represented in memory ? Explain with the help of suitable example, the declaration and initializing the array elements. 7

(b) What is the output of strcmp() function ? Write a C program to reverse a string without using inbuilt string functions. 7

5. (a) What is Function ? What are its advantages ? Explain the various parameter passing techniques using suitable examples. 7

(b) What is the difference between a recursive and an iterative function ? Write a C program to find the factorial of a number. 7

6. (a) What functions are used to implement dynamic memory allocation in C ? Explain each one with their usage. 7

(b) Explain the concept of an array of structures with an example program. How is an array of structures different from a regular array ? 7

7. (a) What are the file I/O functions in C ? Give a brief note about the task performed by each function. 7

(b) Write a C program to copy the contents of one file to another. 7

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PAPER ID—16150

B.Tech. (Computer Science and Engineering) (Cyber Security)

EXAMINATION, 2024

(First Semester)

PROGRAMMING FOR PROBLEM SOLVING USING C

Code : CSE-101

Time : 3 Hours *Maximum Marks : 70*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : This question paper consists of two Units. Unit I comprises seven questions of short answer type. All questions are compulsory.

Each question carries 2 marks. Unit II comprises six long answer type questions out of attempt any *Four* questions. Each question carries 14 marks. Do not write anything on the question paper.

Unit I

(Short Answer Type Questions)

1. (a) Write a program using one printf statement to print the pattern of Asterisks as shown below : **2**

```
*
* *
* * *
* * * *
```

(b) What would be the value of c after execution of the following statements ? **2**

```
int x, y = 10;
char z = 'a';
x = y + z;
```

(c) Given a number, write a program using while loop to reverse the digits of the number : 2

12345

Should be written as

54321

(d) Is it advisable to use goto statements in a C program ? Justify your answer. 2

(e) Define a one-dimensional, 12-element integer array called *arr*. Assign the values 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34 to the array element in C. 2

(f) Differentiate between user-defined function and built-in function in C. 2

(g) Differentiate between structure and union. 2

Unit II

(Long Answer Type Questions)

2. (a) Write a program that reads two integers from the keyboard, divide them, and then prints the result upto two decimal points. 7

(b) Discuss the various storage class specifiers in C. 7

3. (a) Differentiate between the uses of break and continue using suitable examples. 7

(b) Discuss the role of pre-processors in C with example. 7

4. (a) Given are two one-dimensional arrays A and B which are sorted in ascending order. Write a program to merge them into a single sorted array C that contains every item from arrays A and B, in ascending order. 8

(b) Write a program to calculate factorial of a given number n using recursion. 6

5. (a) Write a function that returns the number of times the character is found in a string. The function has two parameters. The first parameter is a pointer to a string. The second parameter is the character to be counted. 6

(b) List and discuss four string handling function in C. 8

6. Write a program using pointers to read in an array of integers and print its elements in reverse order. 14

7. (a) With a suitable example, explain the concept of pass by reference. 4

(b) Using the prototypes explain the functionality provided by the following functions : 10

(i) rewind()

(ii) fseek()

(iii) ftell()

(iv) fread()

(v) fwrite().

(T-1269) Roll No. .....

ID—220-CU-111631/111631-B2

B. Tech. EXAMINATION, 2023

(First Semester)

COMPUTER SCIENCE AND ENGINEERING

(CYBER SECURITY)

Programming for Problem Solving Using C

Time : 3 Hours *Maximum Marks : 70*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Section I is compulsory. Attempt *Five* questions in all, selecting *four* questions from Section II. All questions carry equal marks.

Section I

1. (a) What do you understand by strings ?
   (b) Give an example of 'for' loop.
   (c) Explain various data types used in C.
   (d) What do you mean by storage classes ?
   (e) Define Structures.
   (f) What is function prototype ?
   (g) Differentiate between Algorithm and Flow charts. 7×2=14

Section II

2. (a) What do you understand by loops ? Discuss 'for' loop and its syntax with example. 7
   (b) Write a program that reads a number and determines if the number is zero, positive or negative. 7

3. (a) Differentiate between 'while' and 'do while' loop with example. 7
   (b) Write a program to print the days of a week by using switch statement. 7

4. (a) Define Array. How is it declared and initialised ? Explain using an example. 7

(b) What are recursive functions ? Write a program to find the factorial of a number using recursion. 7

5. (a) Explain Call by Reference with an example. 7

(b) Write a program to generate Fibonacci series. 7

6. Define Pointers. Explain use of pointers in Self-Referential structures. 14

7. Explain different types of Operators used in 'C'. 14